

NAME P/N QTY	CRIT	FAILURE MODE & CAUSES	FAILURE EFFECT	RATIONALE FOR ACCEPTANCE
SUIT PRESSURE REGULATOR, ITEM 113D ----- SV778873-15 (1)	2/1R	113DFM04 External gas leakage. Seal failure, bellows leakage.	END ITEM: Suit gas leakage to ambient. GFE INTERFACE: Excessive consumption of the primary oxygen supply. The SOP is automatically activated during EVA if the suit pressure drops to 3.33 psid minimum. MISSION: Terminate EVA. Loss of use of one EMU. CREW/VEHICLE: None for single failure. Possible loss of crewman with loss of SOP. TIME TO EFFECT /ACTIONS: Immediate. TIME AVAILABLE: Minutes. TIME REQUIRED: Immediate. REDUNDANCY SCREENS: A-PASS B-PASS C-PASS	A. Design - Leak is through a radial O-seal in the bellows cap, and radial O-seals in the outlet fitting and the relief and orifice bore plugs. The O-seal design configuration, dimensions and rigidness of assembly provide squeeze under all load conditions. The bellows operates with 4.3 psi differential pressure and is rated for 84 psi proof. B. Test - Vendor Component Acceptance Test - The manufacturer, CTI performs an external leakage test to assure bellows and seal integrity. PDA Test - An external leakage test is performed per SEMU-60-010. The regulator is placed in the PRESS position with the regulator inlet pressure at 850-950 psia helium. The outlet pressure is established at 4.5 psig max. A helium mass spectrometer is used to "sniff" for evidence of leakage. No leakage is allowed. Certification Test - Certified for a useful life of 20 years (Ref. EMUM-0083). C. Inspection - All details, gases and test facilities are cleaned and inspected to HS3150 EM50A to preclude contamination clogging. Details, including the O-rings, O-ring grooves and sealing surfaces, are 100% inspected per drawing dimensions and surface finish characteristics. Details are manufactured from material with certified physical and chemical properties. The running and final torque of all threaded connections are verified by Vendor and DCAS inspection. A trial assembly is run on all details and then they are visually inspected. D. Failure History - None. E. Ground Turnaround - Tested for non-EET processing per FEMU-R-001, Final SEMU Gas Structural and Leakage. None for EET processing. F. Operational Use - Crew Response - PreEVA: When detected during suit leak check, trouble shoot problem, if no success consider EMU 3 if available. EMU no go for EVA. EVA: When CWS data confirms an accelerated primary O2 use rate, terminate EVA. If CWS data confirms a loss of suit pressure integrity coupled with an accelerated primary O2 use rate, abort EVA. Training - Standard EMU training covers this mode. Operational Considerations - Flight rules go/no criteria related to EMU suit pressure regulation. EVA checklist procedures verify hardware integrity and operational status prior to EVA. Real Time Data System allows ground monitoring of EMU systems.

EXTRAVEHICULAR MOBILITY UNIT
SYSTEMS SAFETY REVIEW PANEL REVIEW
FOR THE
I-113 PRIMARY PRESSURE CONTROL MODULE
CRITICAL ITEM LIST (CIL)

EMU CONTRACT NO. NAS 9-97150

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